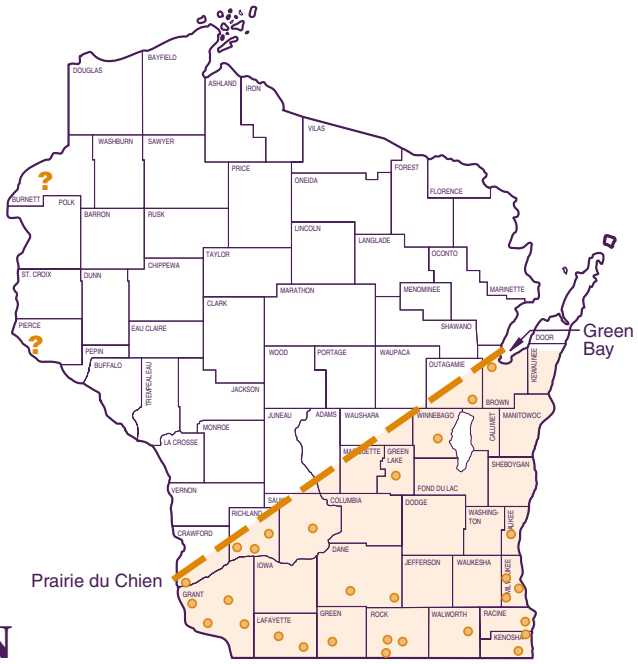

Figure 1. *Historical range of wild turkeys in Wisconsin as documented by Schorger (1942, dots) and additional sites suggested by Evrard (1993, question marks).*

HISTORY OF WILD TURKEYS IN WISCONSIN

Historically turkeys occupied much of southern Wisconsin, south of a line from Prairie du Chien to Green Bay (Figure 1). The Jesuit missionary Claude Jean Allouez wrote in 1670 of wild turkeys near Lake Winnebago in Wisconsin. Reports from other early explorers suggest that turkeys may have occurred as far north as Pierce and Burnett counties. The northern boundary of turkey distribution probably fluctuated in response to severe winters. Southwestern Wisconsin probably had the highest populations. It was not uncommon in 1816 for a Fox Indian to bring 20 to 30 turkeys to Prairie du Chien for sale. In 1856 wild turkeys sold for 25 cents apiece in Lancaster (the equivalent of about $5 in 2001). By 1860 wild turkeys were very rare, and they were completely gone in the late 1800s. Unregulated market hunting, widespread clearing of woodlands, and infectious diseases from domestic poultry contributed to this extirpation.

Historic Restocking Efforts

A private individual made the first attempt at reestablishing wild turkeys in Wisconsin by releasing 2 pair near Lake Koshkonong in 1887. By 1890 estimates of their numbers varied from 23 of pure wild strain to more than 200 of pure and mixed wild and domestic strains. These flocks perished in the early 1900s. In 1929 the State of Wisconsin released 39 pen-reared game farm turkeys in Sauk and Grant counties. By 1938, 2,942 turkeys had been released, but numbers declined as unregulated hunting, disease, domestication, and predation took their toll.

The state's second restoration started in 1954 and continued through 1957. More than 700 turkeys from a Pennsylvania game farm were released into the Meadow Valley Wildlife Area and adjoining Necedah National Wildlife Refuge near Necedah. This area was

In 1929 the Wisconsin Conservation Department released 39 pen-reared game farm turkeys in Sauk and Grant counties.

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WALTER BARITSKY

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selected, in part, because it had large blocks of mixed forests, including oak; aspen; and jack, white, and red pine. Oaks were widely distributed, but acorn yields were low, inhibited by frequent spring killing frosts. The area is quite flat and has extensive wetlands which are largely unimportant to turkeys. Pastures and agricultural crop fields (active and abandoned) associated with small dairy and beef farms, and cranberry marshes occupied much of the adjacent private land.

In 1958 the population dropped substantially due to an outbreak of blackhead disease after the 1957 release and a severe winter in 1957-58. Turkey numbers rebounded in the early to mid-1960s, and spring gobbler (male turkey) hunts were held on the Meadow Valley Wildlife Area and Necedah National Wildlife Refuge during 1966-68. About 20 gobblers were harvested during each of these three years. However, severe winters in the late 1960s and early 1970s decimated this flock and hunting was discontinued. The releases of the mid-1950s were largely unsuccessful because the birds came from game farms and because winter food sources were inadequate during most winters, particularly when deep snow persisted. During the 1970s and early 1980s, small numbers of birds survived on the Meadow Valley-Necedah properties and adjacent farmland.

In the mid-1960s birds from the Meadow Valley Wildlife Area were transplanted to Clark, Eau Claire, Marinette, Pepin, Buffalo, Grant, and Crawford counties, at 20-30 per release. The U.S. Forest Service also stocked 81 turkeys on the Nicolet National Forest in Oconto County during the late 1970s. All these releases of game-farm-origin turkeys were unsuccessful.

These game farm birds failed to prosper for several reasons including: genetic selection against wildness in game farm populations, poor survival skills, and a high incidence of disease and parasitism associated with confinement. In the northern areas, more frequent severe winters and the scarcity of dairy agriculture further hampered survival.

Top: Stanley Plis of the Wisconsin Conservation Department releasing a wild turkey near Meadow Valley Wildlife Area in Juneau County.

Center: Two hundred seventeen wild turkeys were released near Meadow Valley Wildlife Area in 1956. Here, W.M. Alexander releases one of the flock.

Bottom: Spring gobbler hunts were held at Meadow Valley Wildlife Area and Necedah National Wildlife refuge during 1966-68. About 20 gobblers were harvested each year.

Recent Restoration Activities

These experiences made it clear that successful restoration depended on acquiring some truly wild turkeys. The DNR renewed efforts to establish wild turkeys in Wisconsin in the early 1970s, taking advantage of other states' experience and a better understanding of turkey ecology. The Missouri Department of Conservation agreed in 1974 to supply Wisconsin with 45 wild-trapped turkeys in exchange for 135 ruffed grouse. The first shipment of Missouri turkeys was released in Vernon County's Bad Axe watershed in January 1976. Over the next nine years, 334 wild turkeys from Missouri were released throughout southwestern Wisconsin, and more than 1,000 Wisconsin ruffed grouse went to Missouri in exchange.

To accelerate restoration, turkeys were live-trapped in Buffalo, Crawford, Grant, Iowa, Richland, Sauk, Trempeleau, and Vernon counties, beginning in 1979, and transplanted throughout the southern two-thirds of Wisconsin. By 1993, 3,385 turkeys had been stocked at 164 sites in 49 counties (Figure 2). A typical stocking was 5 male and 15 female turkeys. In winters 1998-99 and 1999-2000, 294 additional turkeys were released at 13 sites in 6 counties along the northern fringe of turkey range. By spring 2000 Wisconsin's turkey population had grown to over 200,000 birds.

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Wisconsin's recent efforts to reintroduce wild turkeys began in the 1970s with the release of wild-trapped turkeys from Missouri. Netting and transplanting southwestern Wisconsin turkeys to other areas accelerated restoration efforts.

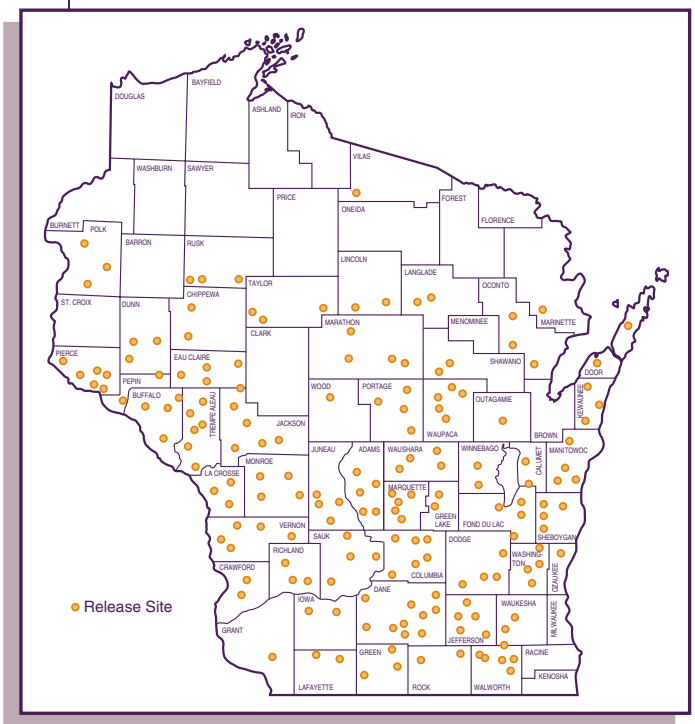

Figure 2. *Wild turkey release sites, 1976-2000.*

Establishment of Wild Turkeys in Turkey Hunting Zone 4

Turkey Hunting Zone (THZ) 4 dramatically illustrates the rapid establishment of turkeys. Located in northern Iowa, northwestern Dane, and northeastern Grant counties (Figure 3), this zone includes about 700 square miles of land area and is about 40% forested. Dairy farming is the main agricultural land use. Seventy-three birds from Missouri were released at three THZ 4 sites in 1980 and 1984. Five gobblers (males) and 26 hens (females) were stocked near Avoca in 1980, 5 gobblers and 15 hens near Arena in 1980, and 6 gobblers and 16 hens near Mazomanie in 1984. The first spring hunting season in 1984 saw just one gobbler harvested per 19 square miles of land area. Estimates from a helicopter count in January 1985 showed fewer than 2 turkeys per square mile of land area.

By 1989 turkeys were distributed throughout THZ 4, and approximately one gobbler was harvested per square mile. Helicopter-based counts during January 1991 and 1993 showed that the turkey population was up to about 28 birds per square mile of land area. This population yielded spring gobbler harvests of about 1.5 birds per square mile during the 1990s.

Other Turkey Hunting Zones throughout southwestern Wisconsin also had rapid population increases although their populations did not grow as high as in THZ 4.

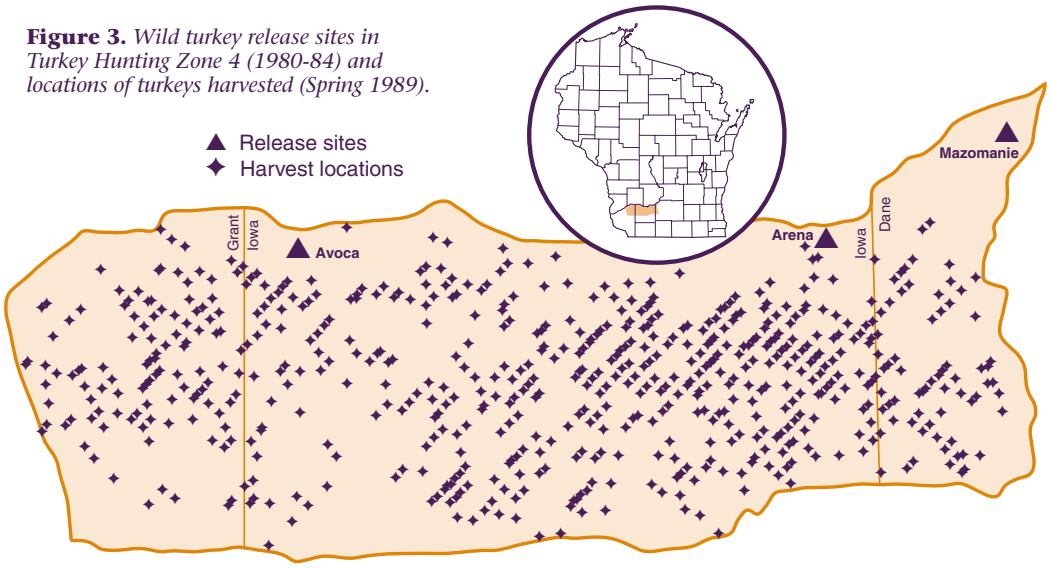

Figure 3. *Wild turkey release sites in Turkey Hunting Zone 4 (1980-84) and locations of turkeys harvested (Spring 1989).*

Stocking sites were initially selected based on wildlife manager recommendations. In 1987 the DNR developed specific guidelines for selecting sites, giving priority to sites with the highest suitability for turkeys. They theorized that the depth and persistence of snow would define the northern limit of suitable habitat since it restricts turkey movement and access to food. It seemed unlikely that a turkey population could sustain itself north of a line where 10-12 inches of snow regularly covered the ground for two or more months.

These broad guidelines specified suitable turkey habitat with priority on sites that could support a huntable population. South of the 10-inch snow line, criteria considered local habitat and proximity to other turkey release sites. Wildlife biologists evaluated the percentage

of land area in deciduous or coniferous woodlands, the amount of oak-hickory forest, topographic relief, spring seeps or streams, and the presence of dairy agriculture. They avoided areas with large land tracts devoted to commercial agricultural crop production and those developed for human commercial and residential use.

After the high priority sites were stocked, turkeys were released if an area met most of the criteria. Finally, several test releases were made in less suitable areas. By 1993, 16 sites were stocked north of the 10-inch snow line and one was stocked north of the line where 12 or more inches of snow could be expected to persist for 30 days or more. These test releases demonstrated that turkeys could survive two consecutive severe winters in 1995-96 and 1996-97, leading to 13 additional northern releases during the winters of 1998-99 and 1999-2000.

Wisconsin also benefited from turkeys stocked originally in Michigan's Upper Peninsula and in eastern Minnesota. The Michigan Department of Natural Resources released game farm turkeys in Menominee County, Michigan, in 1976. By 1978 some of the birds had moved into northeastern Wisconsin's Florence and Marinette counties. These turkeys depend more on barnyard waste grain and artificial feeding in winter than do those in central and southern Wisconsin. In addition, some Missouri turkeys originally released in Pine County, Minnesota, moved into northwestern Wisconsin in Polk and Burnett counties. These northern turkey populations benefited from a string of mild winters in the late 1980s and early 1990s.

Immigrant populations in northwestern Wisconsin responded better than those in northeastern Wisconsin. This may be due, in part, to being from a wild strain. The northwest region also has higher quality habitat — dairy agriculture mixed with forests dominated by oak — than the northeast region. Turkeys in the northern regions where winter conditions can be more severe may also have benefited from public interest in feeding deer and other wildlife during winter.

Funding for Wisconsin's turkey restoration program came from hunting licenses, Pittman-Robertson funds, and the National Wild Turkey Federation's "Target 2000" program. The NWTF initiated Target 2000 in the late 1980s with the goal of restoring turkeys to all suitable habitat in the United States by the year 2000. This program coordinated turkey transplants among numerous states and established a standard reimbursement rate to cover the costs of live-trapping, handling, and transporting birds. Wisconsin shipped about 1,400 turkeys to four other states for their restoration programs just as Wisconsin has benefited from Missouri turkeys. The resulting revenues let Wisconsin accelerate in-state restoration.

Turkeys spread from release sites to surrounding areas thanks to reasonably good survival of stocked birds and good production of young during the first few critical years. They generally dispersed throughout a turkey hunting zone (THZ) area so that most THZs were opened to spring hunting within 5 years after a release.

Spring gobbler hunting resumed in parts of southwestern and central Wisconsin in 1983; fall hunts began in l989. Only male and bearded female birds are legal during spring, but birds of any sex or age are legal in fall. Hunts are designed to achieve conservative harvests and ensure most hunters have a high quality hunt experience.

Restoring wild turkeys to Wisconsin was successful because of unprecedented landowner cooperation, large numbers of wild birds in

Successful restoration of wild turkeys resulted from tremendous landowner cooperation, an abundance of wild birds, experienced trappers, high quality habitat, and favorable weather.

The National Wild Turkey Federation supported Wisconsin's restoration efforts.

Wild Turkey Hunting Zones

Wildlife managers use Turkey Hunting Zones (THZs) as a framework for gathering survey data and making harvest management decisions. These are areas of similar land use bounded by major roads and/or rivers. Managers record turkey harvest statistics for each THZ. Spring and fall turkey hunting permits are issued for specific zones, to distribute hunting effort and limit hunter interference. By 1999, 41 THZs had been delineated (Figure 4). Turkey Hunting Zones are grouped into six regions to aid in summarizing population and hunter survey data. The regional groupings combine zones with similar habitat type, hunter density, and turkey density.

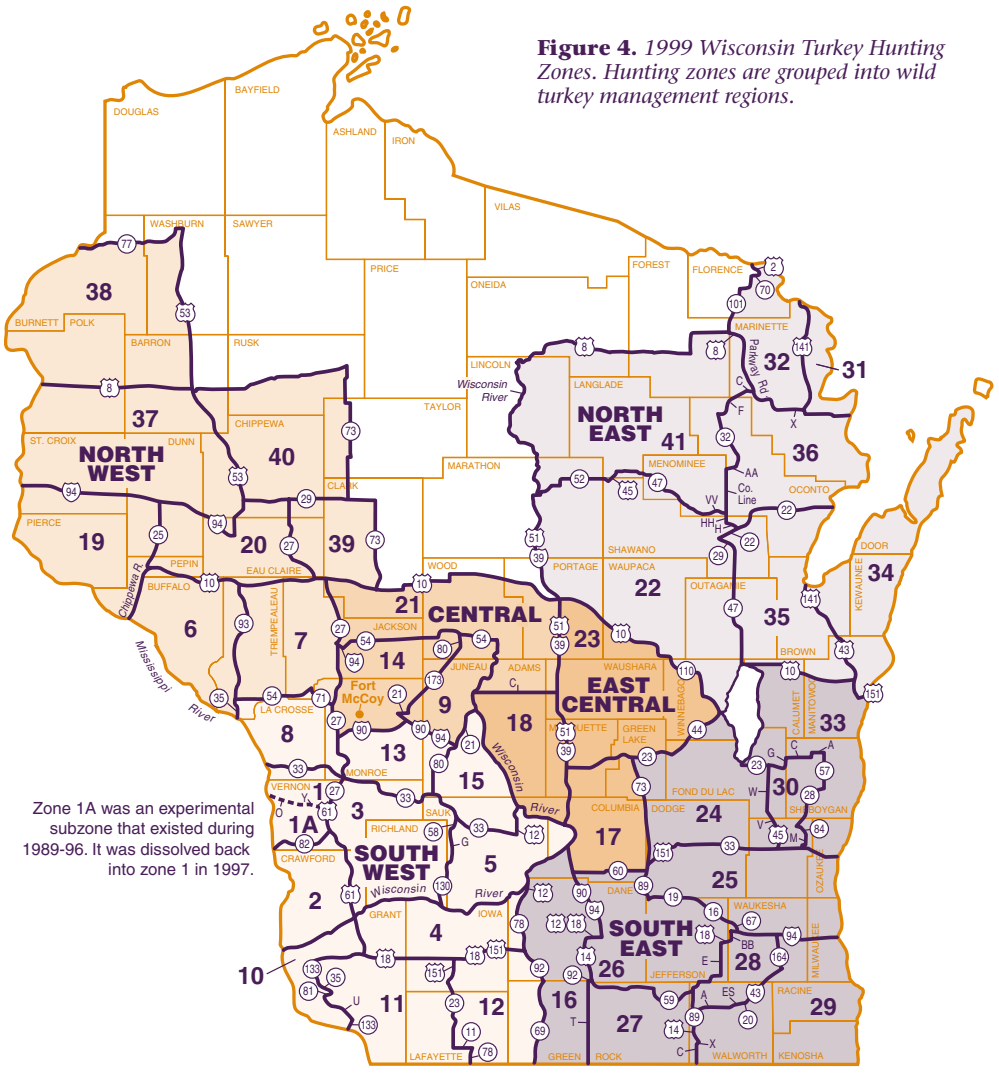

Figure 4. *1999 Wisconsin Turkey Hunting Zones. Hunting zones are grouped into wild turkey management regions.*

the source areas, good trapping conditions, and experienced live-trapping crews. Turkeys had excellent survival because they were released in high quality habitat and because favorable weather followed most releases. Dairy farming also favored turkey survival. Waste corn from picked fields and spread cow manure on dairy farms supplemented the wild foods — acorns, various fruits, and seeds — in most areas.

Current Distribution of Wild Turkeys

Today, turkeys occur throughout central and southern Wisconsin and in several northwestern and northeastern counties (Figure 5). Spring harvest success is one of the best information sources on turkey abundance in Wisconsin regions. Harvest per permit issued per square mile of land area is highest in the unglaciated Driftless Area of southwestern Wisconsin, and in parts of eastern Wisconsin around the Northern and Southern Units of the Kettle Moraine State Forest. Turkeys are less abundant in northwestern and northeastern Wisconsin, in parts of west central Wisconsin, and in the extreme southeastern part of the state. Turkeys are rarely found in extreme northern and most of northcentral Wisconsin.

Spring harvest success is one of the best information sources on turkey abundance in Wisconsin regions.

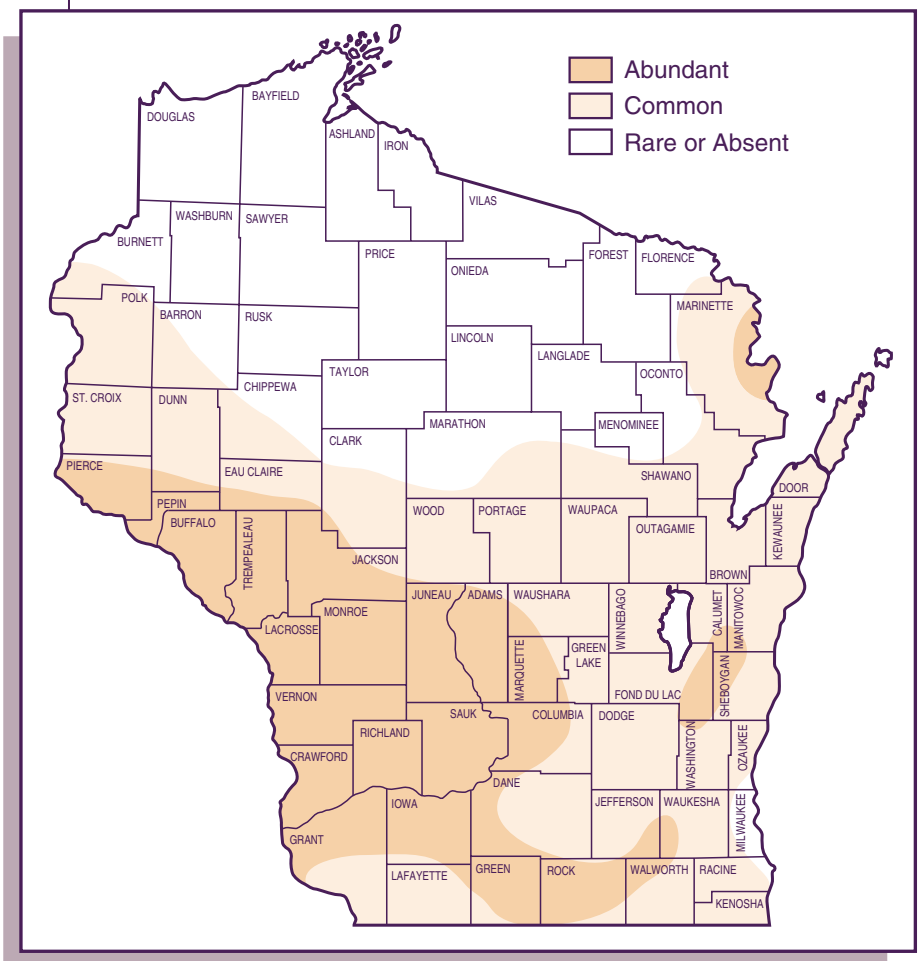

Figure 5. *Distribution and relative abundance of wild turkeys in Wisconsin, 1999.*

Counting Wild Turkeys from Helicopters

DNR PHOTO

JOHN KUBISIAK

Harvest data is useful for learning which areas support more or fewer turkeys, but it does not tell how many actually live in an area. To address this, the DNR used helicopters to count turkeys in five THZs during the winters of 1988-89 through 1993-94. Turkeys were counted when there was fresh snow at least 6 inches deep. To determine how many turkeys a helicopter count would miss, we also counted turkeys on the ground in THZ 1A on the same day as the helicopter count. We used flocks with at least one radio-tagged turkey, then compared the two. In three years, we compared 43 flocks totaling 820 turkeys. This showed that helicopter counts found 80% of the turkeys and missed 20%. We adjusted estimates of turkeys per square mile using this observability rate.

Helicopter surveys showed that turkey densities varied from about 3 birds per square mile in THZ 6 in Buffalo County to about 28 birds per square mile in THZ 4 in northern Iowa County (Figure 6). Comparing these estimates to spring harvest information suggests that turkey densities in the Driftless Area vary from 10-30 birds per square mile in late winter. In parts of central and northern Wisconsin, late winter turkey densities average less than 5 birds per square mile, and some areas with marginal habitat have fewer than 2 birds per square mile.

Helicopters were very useful in this study, but they can only be used where pines, spruce, and other conifers are sparse so turkeys can be seen. Rental is also costly, at more than $240 per hour, and travel expenses for observers add up. Consequently, future helicopter use will likely be limited to special research projects.

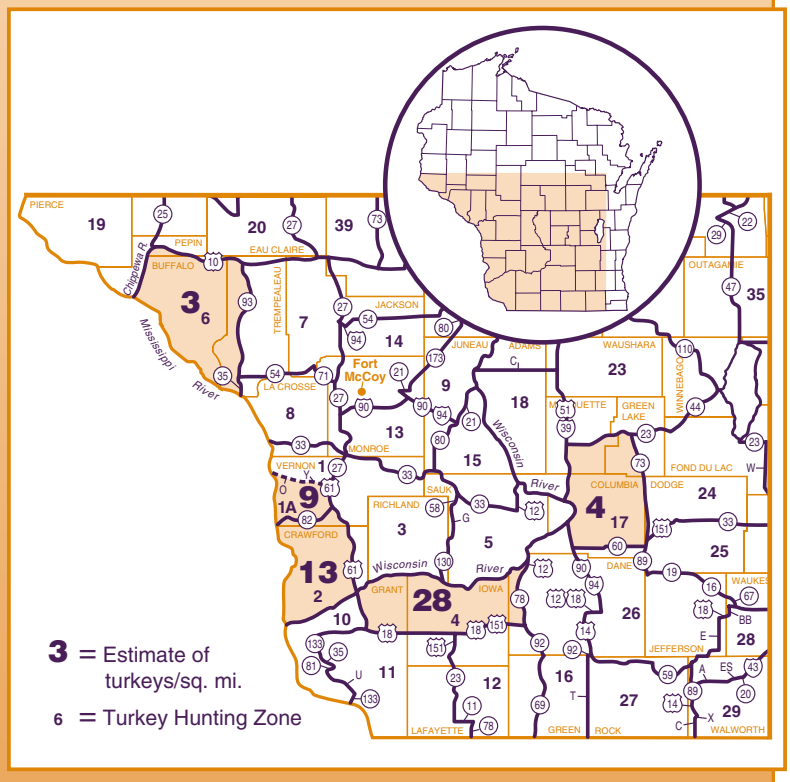

Figure 6. *Estimate of the number of wild turkeys per square mile of land area in selected Turkey Hunting Zones, 1989-94 (average of multiple surveys).*